

AMENDMENTS TO THE CLAIMS:

This listing of the pending claims will replace all prior versions and listings of claims in this application:

1. (Currently Amended) In a method for conducting a chemical reaction in the presence of a catalyst, the improvement comprising:

providing said the catalyst on a support that is thermally and electrically conductive, wherein said support is selected from the group consisting of conductive graphite, carbon nanotubes, activated carbon granules, and carbonaceous adsorbents; and

supplying an electric current to said the catalyst on said the support such that a the temperature of said the catalyst increases.

2. (Canceled).

3. (Currently Amended) The method of claim 1 2 wherein said the support is doped with a metal oxide.

4. (Currently Amended) The method support of claim 3 wherein said the support is carbon fiber.

5. (Currently Amended) The method of claim 1 wherein said the catalyst is selected from the group consisting of as Pt, Pd, Ru, Ni, In, P, TiO<sub>2</sub>, V<sub>2</sub>O<sub>5</sub>, MoO<sub>2</sub>, WO<sub>3</sub>, ZnO, SnO<sub>2</sub>, CuO, Cu<sub>2</sub>O, FeO, Fe<sub>2</sub>O<sub>3</sub>, and mixtures thereof etc.

6. (Currently Amended) The method of claim 5 wherein said the catalyst is present in admixture with a carrier.

7. (Currently Amended) The method of claim 6 wherein said the carrier is selected from the group consisting of graphite powder, graphite or activated carbon powder, Al<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, TiO<sub>2</sub>, MgO, ZrO<sub>2</sub> and mixtures thereof.

8. (Currently Amended) The method of claim 6 wherein said the carrier is sintered and has pores from about 1 to about 100 Angstroms Angstrom in diameter.

9. (Currently Amended) The method of claim 8 wherein said the carrier has a surface area of about 1 to 1,000m<sup>2</sup>/g about 1000 m<sup>2</sup>/g.

10. (Currently Amended) The method of claim 1 wherein said the catalyst on said the support is in the form of a particle and said the chemical reaction is conducted in the presence of a bed of contacting particles.

11. (Currently Amended) The method of claim 10 wherein said the bed of particles is captured between a pair of electrodes.

12. (Currently Amended) The method of claim 1 wherein said the support is a conductive carbonaceous material having a pore diameter porosity of about 0.005 to about 0.2 micrometers.

13. (Currently Amended) The method of claim 12 wherein said the support possesses a heat conductivity of about 0.8 watt/cm-K to about 23 watt/cm-K.

14. (Currently Amended) The method of claim 13 wherein said the support exhibits an electrical resistivity resistance of about 1 to about 100 Ohms-cm ohm/square.

15. (Currently Amended) The method support of claim 14 wherein said the support exhibits a dielectric constant of about 5 to 6 at about  $10^3$  Hertz AHz.

16. (Currently Amended) The method of claim 1 wherein said the catalyst is present on said the support in an amount of about 1 μg/cm<sup>3</sup> to about 10 g/cm<sup>3</sup> one microgram to 10 grams/cm<sup>3</sup>.

17. (Currently Amended) The method of claim 1 wherein said the support is a woven or non-woven carbon fiber cloth or felt.

18. (Currently Amended) The method of claim 17 wherein said the carbon fiber cloth or felt is folded or rolled and said the reaction is carried out by passing chemical reactants between said the folds or rolls in said the cloth or felt cloth/felt.

19. (Currently Amended) The method of claim 1 wherein said the support is a polymeric adsorbent.

20. (Currently Amended) The method of claim 19 wherein said the polymeric adsorbent is an ion exchange resin.

21. (Currently Amended) The method of claim 20 wherein said the ion exchange resin is a bead.

22. (Currently Amended) The method of claim 1 wherein said the catalyst includes at least one of contains copper, zinc and aluminum.

23. (Currently Amended) The method of claim 1 wherein said the electric current that is passed through said the catalyst increases the temperature of said the catalyst about 50 to about 1200 degrees C.

24. (Currently Amended) The method of claim 1 wherein said the chemical reaction is a methanol steam reforming reaction.

25. (Currently Amended) The method of claim 1 wherein said the support is a non-woven carbon fiber plug.

26. (Currently Amended) The method of claim 1 wherein a plurality of contacting non-woven carbon fiber plugs carrying said the catalyst are interposed between a pair of electrodes.

27. (Canceled).

28. (Canceled).

29. (Currently Amended) A method for supporting a catalyst comprising:

providing a thermally and electrically conductive support, wherein said support is selected from the group consisting of conductive graphite, carbon nanotubes, activated carbon granules, and carbonaceous adsorbents ~~the conductive support is thermally and electrically conductive~~;

~~providing a support, wherein said support comprises the conductive support, thereby forming a conductive support;~~

providing a catalyst; and

dispersing said catalyst in or on said ~~the~~ conductive support, ~~thereby supporting said catalyst.~~

30. (Currently Amended) A method for supplying energy to a catalyst comprising:

providing a thermally and electrically conductive support, wherein said support is selected from the group consisting of conductive graphite, carbon nanotubes, activated carbon granules, and carbonaceous adsorbents; ~~the conductive support carbon and/or any suitable thermally and electrically conductive substance, and wherein the conductive support is thermally and electrically conductive;~~

~~providing a support, wherein said support comprises the conductive support, thereby forming a conductive support;~~

providing a catalyst; and

dispersing said catalyst in or on said ~~the~~ conductive support; and

providing energy to said conductive support, whereby said energy activates said conductive support thereby providing said catalyst with energy at the local level, wherein said energy provided at the local level is sufficient to activate said catalyst.

31. (Currently Amended) In a method for conducting a chemical reaction in the presence of a catalyst, the improvement comprising:

providing said the catalyst on a support that heats when placed in a microwave field, said support being selected from the group consisting of conductive graphite, carbon nanotubes, activated carbon granules, and carbonaceous adsorbents; and

exposing said the support to a microwave field to cause a the temperature of said the catalyst to increase.